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DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGAM-P (M) (28 Jan 69) FOR OT UT 684209

3 February 1969

3 95-963
SUBJECT: Operational Report - Lessons Learned, Headquarters, 5th Battalion
(AW)(SP) 2d Artillery, Period Ending 31 October 1968 (U)

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2. Information contained in this report is provided to insure that the Army realizes current benefits from lessons learned during recent operations.

3. To insure that the information provided through the Lessons Learned Program is readily available on a continuous basis, a cumulative Lessons Learned Index containing alphabetical listings of items appearing in the reports is compiled and distributed periodically. Recipients of the attached report are encouraged to recommend items from it for inclusion in the Index by completing and returning the self-addressed form provided at the end of this report.

BY ORDER OF THE SECRETARY OF THE ARMY:

Kenneth G. Wickham
KENNETH G. WICKHAM
Major General, USA
The Adjutant General

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as

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DEPARTMENT OF THE ARMY
Headquarters, 5th Battalion (AW)(SP) 2d Artillery
APO San Francisco 96266

10 November 1968

SUBJECT: Operational Report of 5th Battalion (AW)(SP) 2d Artillery
For the Period Ending 31 October 1968 RCS CSFOR-65 (R1) (U)

THRU: Commanding General
II Field Force Vietnam Artillery
APO 96266

Commanding General
II Field Force Vietnam
APO 96266

Commanding General
United States Army Vietnam
ATTN: AVHGC-DST
APO 96375

Commander in Chief
United States Army in Pacific
ATTN: GPOP-DT
APO 96558

Assistant Chief of Staff for Force Development
Department of the Army
Washington, D.C. 20310

1. (C) Section I, Operations: Significant Activities

a. Unit attachments:

(1) During the reporting period the battalion remained assigned to US Army Vietnam attached to II Field Force Vietnam with operational control exercised by II Field Force Vietnam Artillery.

(2) Battery A remained attached to 1st Infantry Division for operational control (OPCON) and logistics. Battery B remained attached to the 25th Infantry Division for OPCON and logistics. Battery C remained attached to the 9th Infantry Division for OPCON and logistics.

FOR OT UT
684209

Inclosure 1

GROUP 4
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(3) Battery D remained General Support to II Field Force Vietnam Artillery with elements further attached for OPCON and logistics as follows: Three (3) sections (6 M42A1's) attached to 199th Light Infantry Brigade. Two (2) sections attached to 54th Artillery Group, one (1) section attached to Royal Thailand Army Volunteer Forces, and two sections remaining at the battery headquarters with be prepared missions.

(4) Battery D (MG) 71st Artillery remained attached to the battalion with elements further attached for OPCON and logistical control as follows: Two (2) sections (8 M55's) remained attached to 23rd Artillery Group throughout the reporting period. One section each was attached to 54th Artillery Group and 25th Infantry Division. One-half section each (2 M55's) was attached to 1st Infantry Division and 9th Infantry Division. One-half section remained in Direct Support of II Field Force Vietnam and one-half section remained at the battery headquarters with be prepared missions. Battery headquarters remains co-located at the battalion base camp.

(5) Battery I (Searchlight) 29th Artillery remained attached to the Battalion and further attached for OPCON and logistics as follows: First Platoon, attached to 1st Infantry Division and Third Platoon attached to 25th Infantry Division. Second Platoon remained General support with elements OPCON to 23d Artillery Group, 199th Light Infantry Brigade, 54th Artillery Group, and 71st Transportation Battalion. Battery headquarters remained co-located at the battalion base camp.

(6) The battalion received attachment of the 1st Vulcan Combat Team (Provisional) for a 6 month combat evaluation. Vulcan personnel arrived in country on 5 October 1968 and closed the battalion base camp on 8 October where they will be deployed from upon receipt of equipment.

(7) A list reflecting the organization structure of the battalion is at inclosure 1.

b. Activities:

(1) During the reporting period, elements of the battalion participated in the following major operations: Toan Thang (Phase II), Kudzu, Quyet Chien, and People's Road.

(2) The battalion Medical Civic Action Program (MEDCAP), under supervision of the Battalion Surgeon, treated 8,611 Vietnamese civilians from villages as far away as 50 miles from the battalion base camp.

(3) The battalion expended 81,348 rounds of 40mm (M42) and 168,100 rounds of .50 caliber (M55) ammunition during the reporting period.

(4) Combat vehicles traveled a total of 98,642 road miles as follows:

(a) M42A1 Duster - 71,534 miles.

(b) M35A2 with M55 Quad 50 - 19,334 miles.

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(c) M151 Mounting Searchlight AN/MSS-3 - 7,764 miles.

(5) Administration and Personnel:

(a) Strength as of 31 October 1968:

	<u>AUTH</u>			<u>ASGD</u>		
	OFF	WO	EM	OFF	WO	EM
5th Bn (AW)(SP) 2d Arty	37	3	658	42	3	628
D Btry (MG) 71st Arty	2	0	112	3	0	105
I Btry (SLT) 29th Arty	7	0	144	6	0	126
Vulcan (Provisional)	<u>1</u>	<u>0</u>	<u>23</u>	<u>1</u>	<u>0</u>	<u>23</u>
	47	3	937	52	3	882

(b) Gains and losses 1 August 68 - 31 October 1968:

	<u>GAINS</u>			<u>LOSSES</u>		
	OFF	WO	EM	OFF	WO	EM
5th Bn (AW)(SP) 2d Arty	21	3	165	17	3	221
D Btry (MG) 71st Arty	2	0	12	1	0	28
I Btry (SLT) 29th Arty	<u>3</u>	<u>0</u>	<u>21</u>	<u>2</u>	<u>0</u>	<u>30</u>
	26	3	198	20	3	279

(c) Casualties 1 August 68 - 31 October 68:

<u>TYPE</u>	<u>NUMBER</u>
Killed in Action	0
Died of Battle Wounds	0
Wounded in Action	31
Missing in Action	0
Non-battle Deaths	2

(d) R&R

1. Out of country:

<u>Location</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>
Australia	15	12	11
Bangkok	12	13	10
Hawaii	11	6	11
Hong Kong	3	2	2
Manila	1	2	3
Penang	0	1	0
Singapore	1	2	0

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<u>Location</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>
Taipei	0	2	2
Tokyo	3	2	1
Kuala Lumpur	1	2	1

2. In-Country:

<u>Location</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>
Vung Tau	18	13	13

(e) Awards and Decorations

<u>AWARDS</u>	<u>NUMBER</u>
Silver Star	4
Legion of Merit	2
Soldier's Medal	6
Bronze Star "V"	12
Bronze Star	23
Air Medal	12
Army Commendation Medal "V"	12
Army Commendation Medal	22
Purple Heart	65
Good Conduct Medal	82

(f) Discipline, Law and Order:

General Court-Martial	0
Special Court-Martial	3
Summary Court-Martial	4
Article 15	65

(g) Special Services: The battalion refurnished and added 2,500 books to the library. The battalion combo musical group (additional duty) was sent to combat locations to entertain troops in the field and continues to be highly popular.

(h) Morale: The morale of the battalion continues to be high.

c. Days in combat: Elements of the battalion were engaged in combat operations throughout the 91 days of the reporting period.

d. Movement: The nature of automatic weapons and searchlight deployment and employment resulted in numerous daily moves and wide dispersion with elements occupying as many as 47 different locations. A representation of field positions occupied during the reporting period is at inclosure 2.

e. Training: The battalion has initiated a comprehensive in-country training program for the large number of unqualified replacement personnel being received. The program has been expanded to a full five days which

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includes firing the M42. Training on the weapons system is conducted by a cadre composed of personnel who have extensive in-country experience. All noncommissioned officers undergo a modified training program designed to provide an insight into the battalion's employment techniques. A minimum of 260 replacement personnel are expected to undergo training in the next 90 days.

f. Vulcan: Vulcan personnel received the same comprehensive training program given all other replacement personnel. Additional briefings, orientations, and liaison visits were accomplished to insure that all personnel are thoroughly familiar with automatic weapons, tactics, and their potential area of employment. Upon arrival of Vulcan equipment, additional training, to include test firing, will be conducted.

g. Commanders comments:

(1) Significant Combat Operations:

(a) Dau Tieng (input from B/5/2):

From 18 - 22 August 1968, one section of M42's and one-half section of M55's were OPCON to elements of 1st Bn, 5th Inf (MECH) in the vicinity of Ben Cui rubber plantation near Dau Tieng. On 18 August 1968, two M42's were in column formation, one near the front and one to the rear, moving from Dau Tieng towards Ben Cui on the main road. The lead elements of the column came under heavy fire at a sharp bend in the road, requiring an M42 to be brought forward to break the resistance. As the M42 neutralized the enemy position, the entire column came under heavy mortar and RPG fire. The column formed a hasty perimeter and continued sustained fire before running low on ammunition which forced a withdrawal. As the mechanized column withdrew, both M42's were placed at the rear of the column where their heavy firepower was utilized to cover the withdrawal operation. On 19 August 1968, two (2) M55's were deployed each with two M42's leading mechanized columns back on the Ben Cui road to establish a blocking force, while other mechanized elements swept through the rubber plantation. Both M42's and M55's supported the day's operation with fire. At the close of the day, two M42's and two M55's were placed on perimeter security in a night defensive position for the mechanized elements. The remainder of the operation involved daylight sweeps of the area and night perimeter security. Total body count for the five day period was 180.

This operation highlights the ability of automatic weapons to successfully support close ground combat operations. The M42 was instrumental in crushing the initial ambush and highly effective in providing covering fire for the withdrawal. Heavy rubber tree growth did not seriously hamper the effects of point detonating 40mm rounds. Some of the 40mm were noted to prematurely burst on contact with vegetation, but the shrapnel effect continued to harass enemy RPG gunners restricting freedom of movement. The supplementary fire of the .50 caliber weapons from personnel carriers and later the firing from the Quad 50's were additionally effective in suppressing the enemy RPG fire. This battalion will continue to emphasize the devastating firepower of automatic weapons which can be effectively applied to offensive close combat operations.

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(b) Mo Cay (input from D/71)

During September 1968, two M55 Quad's and one jeep mounted AN/MSS-3 Xenon searchlight from H Battery, 29th Artillery, were deployed to Mo Cay, Republic of Vietnam (RVN) in support of Army Republic of Vietnam (ARVN) forces. The M55's and searchlight were positioned inside the ARVN compound at Mo Cay with fields of fire and observation north towards a river intersection. The searchlight was oriented reciprocally from the base M55 to provide azimuth data upon detection of targets. On the night of September 3, 1968, searchlight crewmen, utilizing infra-red mode, detected a sampan carrying three enemy navigating in restricted waters. The searchlight squad leader relayed target azimuth and approximate range to the M55 crewmen who quickly applied the data to the gun mount and destroyed the sampan with accurate fire. This engagement illustrates, as previously reported, the effectiveness of deploying automatic weapons jointly with Xenon searchlights. The searchlight provides long range detection of targets, and accurate azimuth data to the automatic weapons crew. When a target is detected, the searchlight may be operated in the visible white light mode, pinpointing the target if disclosure of position location will not compromise the mission. In the case at hand, the engagement was successfully accomplished with the searchlight remaining in the infra-red mode.

(c) FSPB St Barbara (input from D/71).

Throughout the reporting period four (4) M55 Quad's from D Battery (MG) 71st Artillery and two (2) jeep mounted AN/MSS-3 Xenon searchlights from I Battery (Searchlight) 29th Artillery, were in support of Battery A, 2d Battalion (175 SP) 32nd Artillery providing detection and perimeter security at FSPB St Barbara. During August and September 1968, FSPB St Barbara was under virtual siege for 20 days by an enemy force which constantly harassed the base with heavy mortar barrages. The M55 machine gun crewmen were continually exposed during enemy mortar attacks while firing extensive counter mortar and interdiction fire in defense of the strategic position.

A valuable lesson was realized in the adequate protection of equipment during heavy mortar attacks at St Barbara. Initially, mortar rounds impacting in the compact fire base caused considerable equipment damage. One 2½ ton prime mover for the M55 sustained a direct hit by a mortar round on the fuel tank and battery compartment without igniting a fire. Additional layers of sand bags were placed on and around all equipment to prevent further damage by mortars. Vital components such as radiators, battery compartments, and tires were given special protection which significantly decreased vulnerability to fragmentation.

(2) Problem areas:

(a) Rules of Engagement: As previously reported, automatic weapons are often restricted in their freedom to fire except when under an obvious ground attack on a perimeter. Close liaison and coordination with supported units has resulted in lifting restrictions in some positions. At two locations, automatic weapons were given freedom to fire at mortar flashes, providing crews could ascertain that the rounds were directed at the perimeter.

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Later, when the positions were actually mortared, the automatic weapons returned fire immediately at the mortar flashes. In both cases the mortar attacks ceased immediately under the heavy suppressive fire after less than six (6) mortar rounds had been fired by the enemy. This battalion will continue to exert maximum effort in convincing supported units of the need to allow maximum freedom to fire at obviously hostile targets. The resultant deterrent of heavy accurate automatic weapons fire has proven invaluable in every instance.

(b) Personnel Management: The battalion still faces a critical shortage of personnel in the grade E-6, MOS 13F40. As of this reporting date, only 12 of 39 authorized slots are currently filled by individuals of appropriate grade and MOS. As an interim measure the battalion is attempting to acquire E-6 personnel in MOS 16D, Hawk Missile Crewmen, and 13D, Field Artillery Rocket Crewmen, from in-country sources. These personnel are given intensive training prior to being assigned to batteries. Although this will solve the immediate shortage of personnel, it is still deemed imperative to have responsible experienced noncommissioned officers of appropriate grade and MOS to continue effective operations.

(c) Maintenance:

1. Maintenance of M42A1 Dusters has been adversely affected by recurring daily road marches and the temporary halt of the closed loop maintenance program. Daily road marches such as convoy escort, outposting, and road clearing have been compiling inordinate mileage on divisional support Dusters. For example, mileage for the three Divisional support batteries has increased from 13,781 miles per month in March 1968 to 22,609 miles per month in September 1968. This increase in road mileage places additional stress on Duster engines, transmissions, and suspension components, all of which are in critically short supply. The 60 day loss of the closed loop replacement system has created the following situation:

a. No replacement Dusters are available to replace tracked vehicles which have reached the 5,000 mile turn-in criterion.

b. Previously, retrograded M42A1's were a vital source of critical repair parts. The loss of this source coupled with sharp increases in deadlines has nearly depleted unit PLL and support ASL stockages.

2. With the onset of the dry season and the subsequent increased tempo of offensive activity, action was initiated to alleviate the critical situation. Coordination with logistics representatives revealed that the battalion will receive 10 rebuilt Dusters in November 1968 and 9 more in December 1968. Direct support maintenance representatives agreed to increase ASL stockage to peak levels previously needed to sustain dry season operations. Based on mileage and mission increases, a formal request was submitted through channels to review utilization of divisional M42A1 assets in daily recurring road march missions. Because of the inherent delay in implementation of the above cited measures, the situation is not expected to attain equilibrium until early Calendar Year 1969.

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3. The depletion of unit PLL stockages is depicted below:

<u>Btry</u>	<u>Auth Line</u>	<u>Line on Hand</u>	<u>Zero Bal</u>	<u>Per Cent Fill</u>
A	471	290	181	61
B	200	116	84	58
C	266	89	177	33
D	234	81	153	36
HMB	248	147	101	55
D/71	136	18	118	13
I/29	113	33	80	28

4. Critical repair parts for automatic weapons and searchlights are listed below:

a. M42A1 Duster:

Spark Plugs (14MM)	FSN 2920-571-6751
Fuel Injection Pump	FSN 2910-856-3484
Booster Ignition Coil	FSN 2920-556-0784
Relay Master Starter	FSN 5945-612-4740
Muffler (Left)	FSN 2990-798-4024
Muffler (Right)	FSN 2990-798-4025
Muffler Clamp	FSN 2990-738-7047
Road Wheel Support Arm (Left)	FSN 2350-471-9945
Road Wheel Support Arm (Right)	FSN 2350-471-9946
Engine	FSN 2805-628-6015
	or FSN 2805-649-8551
Transmission	FSN 2520-742-7947
	or FSN 2420-649-8543

b. M55 Quad .50 caliber

Drive Assembly (Left)	FSN 1005-657-7844
Drive Assembly (Right)	FSN 1005-657-7843
Drive Belt	FSN 1005-094-9242
Power Charger	FSN 6115-903-5395
Firing Solenoid	FSN 1005-716-2313
Cable Solenoid	FSN 1005-726-6107

c. AN/MSS-3 Jeep Mounted Searchlight:

Alternator	MFG Part Number R00109372
Regulator	MFG Part Number R0013775RA
Rectifier	FSN 6130-027-9393
Blower Motor	FSN 6105-567-3287

(3) Extended Range 40mm ammunition (non-self-destruct)

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(a) During this reporting period elements of the battalion fired extended range 40mm ammunition (9000 meters maximum effective) from several field locations to observe the capabilities of the ammunition.

(b) On 24 October 1968 at Ben Luc, two (2) M42A1 Dusters from C/5/2 fired extended range ammunition at night using an aerial observer for adjustment. The impact area was a river bend approximately 50 meters wide by 200 meters long and at a range of 7000 meters. Initial data placed a 10 round burst in the vicinity of the target. A subsequent burst of rounds using the same data covered the target area. The impact pattern was characterized by considerable range dispersion as expected from the firing tables.

(c) On 30 August 1968 at Duc Hoa, two (2) M42A1 Dusters from B/5/2 Arty fired a daylight fire mission at 4300 meters range using an aerial observer for adjustment. The initial burst of five (5) rounds were fired and adjusted left 100, add 200. The second five (5) rounds were fired and adjusted with drop 50. Fire for effect expended 20 rounds which covered the target area. The aerial observer experienced difficulty spotting the relatively small 40mm burst at the moment of impact. This difficulty may be expected in daylight conditions, with small bursts, and no prior experience in adjusting 40mm rounds.

(d) Extended range ammunition appears to be stable and reasonably accurate on an area basis. The effect of dispersion is good blanket coverage of the target. Although some difficulty was experienced in daylight aerial detection of the 40mm rounds, more experience should eliminate the problem. The battalion will continue to evaluate the utilization of extended range ammunition while confining indirect fire to area target coverage.

(4) Tactical innovation (input from C/5/2). On 20 October 1968, an AN/MSS-3 Xenon searchlight was mounted above the barrels on the barrel shield of an M42A1 Duster from C Battery, 5th Battalion (AW)(SP) 2d Artillery. The searchlight was obtained from a salvaged unit previously damaged by mortar fire from H Battery (Searchlight) 29th Artillery. Subassemblies from the MX-7884A/VSS-1 tank searchlight and parts from a Universal Tower Searchlight Mount were used to mount the searchlight. With the exception of one weld approximately 10 inches above the barrels, the mount is non-permanent. The searchlight can be quickly removed or installed by releasing three (3) trailer hitch type connections and disconnecting the power cable. The control box was placed directly over the barrels within easy reach of the gunner or the azimuth cracker crewman. On 24 October 1968 the Duster, with mounted searchlight, was test fired at night. The shock mount absorbed motion in a superior manner during movement and firing. During firing, no adverse vibration or deflection was experienced; the white light beam remained on the flat trajectory of the round. Muzzle smoke from the 40mm rounds temporarily limited visibility during extended firing. Both the gunner and the azimuth tracker were able to effectively operate the turret/searchlight combination in scanning and observation techniques after a relatively brief period of training.

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The mounting of a Xenon searchlight on an M42A1 Duster is believed to be unique. Because of its inception towards the close of this reporting period, the innovation has not been entirely tested and evaluated. Although initial results appear unsatisfactory due to smoke obscuring the line of sight, the battalion will conduct a more exhaustive examination in the near future.

2. (C) Section II Lessons Learned: Commander's Observation, Evaluation and Recommendations.

a. Personnel: None

b. Operations:

(1) Use of M55's together with M42's in blocking roles.

(a) OBSERVATION: M55's when used in a blocking role together with M42's provide highly complementary firepower to the M42.

(b) EVALUATION: On an operation in heavy rubber tree growth, M55's were effectively employed singly, with Dusters, as a blocking force. Where 40mm ammunition could not penetrate all rubber growth, the heavy caliber .50 penetrating power was extremely effective. In this situation, the Quad .50 was able to provide close support, supplementary fire for the M42 Duster, and contributed effectively to the overall mission.

(C) RECOMMENDATION: None.

(2) Over-commitment of M42 Resources.

(a) OBSERVATION: When all 16 M42A1 Dusters are fully committed to operations, serious maintenance deficiencies develop at an increasing rate.

(b) EVALUATION: The full commitment of all Dusters restricts battery capability to perform effective scheduled maintenance. Because of geographical dispersion and limited access to deployed Duster positions, units are frequently unable to provide needed maintenance services. A successful concept has been devised whereby one section of Dusters is returned to battery base camps to receive extensive maintenance services. By continually rotating one Duster section through battery maintenance facilities, higher operational readiness is achieved. The battalion has included this concept in the automatic weapons employment letter and will continue to stress the importance of maintenance rotation through battery facilities.

(C) RECOMMENDATION: None.

(3) Coordination with Allies for permission to fire.

(a) OBSERVATION: When supporting Allied forces, with restricted rules of engagement, one English speaking interpreter must be immediately available at all times to respond to requests for permission to return fire.

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(b) EVALUATION: A problem occurred in support of Royal Thailand Army Volunteer Forces where two (2) Dusters observed enemy activity and were receiving small arms fire. No English speaking person was immediately available to grant permission to return fire. The rules of engagement stated that the crew could not fire without permission from the supported unit. The Duster eventually opened fire with enough rounds to suppress incoming fire. Coordination with advisory personnel on the following day resulted in the designation of one responsible English speaking person to be immediately available at all times to answer requests from the M42 crews. Less stringent rules of engagement were established to allow the M42 section chief more freedom to engage, based on his evaluation of the tactical situation.

(c) RECOMMENDATION: None.

(4) Radar acquired targets.

(a) OBSERVATION: Automatic weapons fire can be effective against radar acquired targets.

(b) EVALUATION: In three (3) separate locations, M42A1 Dusters are employed near anti-personnel radars. The 40mm fires are adjusted on radar detected intelligence targets during hours of darkness. Both the Duster and radar positions are surveyed to achieve accuracy. Radar personnel indicate that 40mm rounds are impacting within 50 meters of the targets on initial data. At Duc Hoa, prior to firing the Duster from radar data, enemy sightings were normally detected within 400 meters range around the base. After engaging radar detected targets with 40mm fires, sightings have moved to beyond 4,500 meters. In comparison to the field Artillery howitzer, the Duster provides more rapid reaction and a round with a much higher velocity. The high velocity 40mm round apparently impacts on the target before the sound of the fired round reaches the enemy, thus engaging unprotected personnel.

(c) RECOMMENDATION: None.

(5) Automatic weapons employment.

(a) OBSERVATION: One year has elapsed since the battalion published an automatic weapons employment letter to supported unit commanders. New developments, changing missions, and additional lessons learned created a need to publish revised doctrinal policy.

(b) EVALUATION: Attached at Inclosure 3 is a copy of the revised letter on automatic weapons employment in III CTZ, Vietnam.

(c) RECOMMENDATION: None.

(6) Vulcan Capabilities and Characteristics.

(a) OBSERVATION: The arrival of Vulcan prompted publication of a fact sheet on the system's capabilities and limitations for supported commanders.

(b) EVALUATION: Attached at Inclosure 4 is a copy of the fact sheet on Vulcan.

(c) RECOMMENDATION: None.

c. Training: None

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- d. Intelligence: None.
- e. Logistics: None.
- f. Organization: None.
- h. Other: None.

Theodore H. Schmidt

- 4 Incl
- 1. Automatic Weapons Data
- 2. Field Dispositions
- 3. AW Employment
- 4. Vulcan Fact Sheet

THEODORE H. SCHMIDT
LTC, Arty
Commanding

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AVFB-FAC (10 Nov 68) 1st Ind
SUBJECT: Operational Report of 5th Battalion (Aw) (SP) 2d Artillery
For the Period Ending 31 October 1968 RCS CSFOR-65 (h1) (U)

28 NOV 1968

DA, HEADQUARTERS, II FIELD FORCE VIETNAM ARTILLERY, APO 96266

TO: Commanding General, II Field Force Vietnam, ATTN: AVFEC-RL,
APO 96266

1. The quarterly report of the 5th Battalion, 2d Artillery adequately reflects the operations and lessons learned during the reporting period.
2. Reference Section II, para 2 b(2), Overcommitment of M42 Resources. Automatic weapons employment letters are published periodically based upon experience gained in employment and are distributed to all commands which have operational control over automatic weapons assets. This particular problem was also emphasized by the inclusion of comments in the Commander's Notes published by CG, II Field Force Vietnam.
3. Errors in the report have been corrected with pen and ink.


HENRY J. SCHROEDER JR.
Colonel, Artillery
Commanding

AVFBC-RE-H (10 Nov 68) 2nd Ind
SUBJECT: Operational Report of 5th Battalion (AW)(SP) 2d Artillery
For the Period Ending 31 October 1968 RCS CSFOR - 65 (U)

DA, HQ II FFORCEV, APO San Francisco 96266 10 DEC 1968


THRU: Commanding General, US Army Vietnam, ATTN: AVHGC(DST), APO 96375

Commander-In-Chief, US Army Pacific, ATTN: GPOP-DT, APO 96558

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D.C. 20310

1. Subject report is forwarded.
2. This headquarters has reviewed and concurs with the Operational Report-Lessons Learned of the 5th Battalion, 2d Artillery for the period ending 31 October 1968.

FOR THE COMMANDER:


O. B. FORRY
1LT, AGC
Asst AG

GPOF-DT (10 Nov 68) 3rd Ind (U)

SUBJECT: Operational Report of HQ, 5th Bn (AW)(SP) 2d Arty for Period
Ending 31 October 1968, RCS CSFOR-65 (R1)

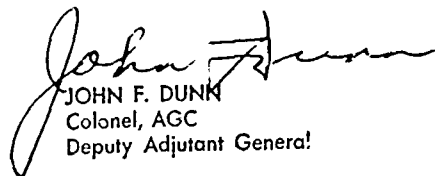
HQ, US Army, Pacific, APO San Francisco 96558

16 JAN 1969

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorse-
ments and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:


JOHN F. DUNK
Colonel, AGC
Deputy Adjutant General

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Automatic Weapons Data

M-42

1. Each firing battery is composed of 2 platoons, 4 sections per platoon, 2 M42's per section. (Total 16 M42's)
2. Each M-42 is armed with 2 40mm guns and 1 M-60 machine gun.
3. Rate of Fire: maximum, 240 rnds/min; sustained, 100 rnds/min.
4. Effective range: 3500 meters (Point Detonating self destruct) 9000 meters (point detonating non self destruct).
5. Ammunition
 - a. Type: 40mm, HE-T or HEI-T, SD, Mk 11, w/Fuze, PD, Mk 27. 40mm, HEI-T, non SD, Mk 11 w/Fuze, PD, Mk 27.
 - b. Basic Load: 480 rounds on carriage (480 more may be towed)
6. Vehicle
 - a. Full tracked, gasoline driven, air cooled.
 - b. 140 gal. fuel gives an operating range from 35 miles to 100 miles depending on terrain conditions.
 - c. Speed: Up to 45 mph on improved roads, 25 mph in cross country operations.
7. Weight: 25 tons (airlift by C-124 or C-141)

M-55

1. The M-55 battery is composed of 6 sections, 4 squads per section, 1 M55 per squad. (Total 24 M-55's)
2. Each M-55 has 4 caliber .50 machine guns on the mount and an M-60 is mounted on the prime mover.
3. Rate of fire: Maximum, 2000 rnds/min; sustained 200 rnds/min.
4. Effective range: Point targets, 1830 meters; area targets 6750 meters.
5. Ammunition
 - a. Type: .50 cal.
 - b. Basic load: 10,000 rounds on the prime mover, 10,000 towed.

Incl 1

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6. Prime mover: 2½ ton truck w/armor kit.

7. Weight

a. Mount only: 3,200 lbs.

b. Mount, basic load, crew: 8,000 lbs. (carried by 1 CH-47)

c. M-55 complete (truck w/armor kit, mount, basic load, crew w/ equipment) 26,204 lbs. (carried internally by C-124, C-130, C-141)

AN/MSS-3

1. Each searchlight battery consists of 3 platoons with 12 lights per platoon. (Total 36 searchlights)

2. Maximum range:

a. White light: 8000 meters*

b. Infra-red: 800 meters*

3. Vehicle: ½ ton truck w/180 amp alternator.

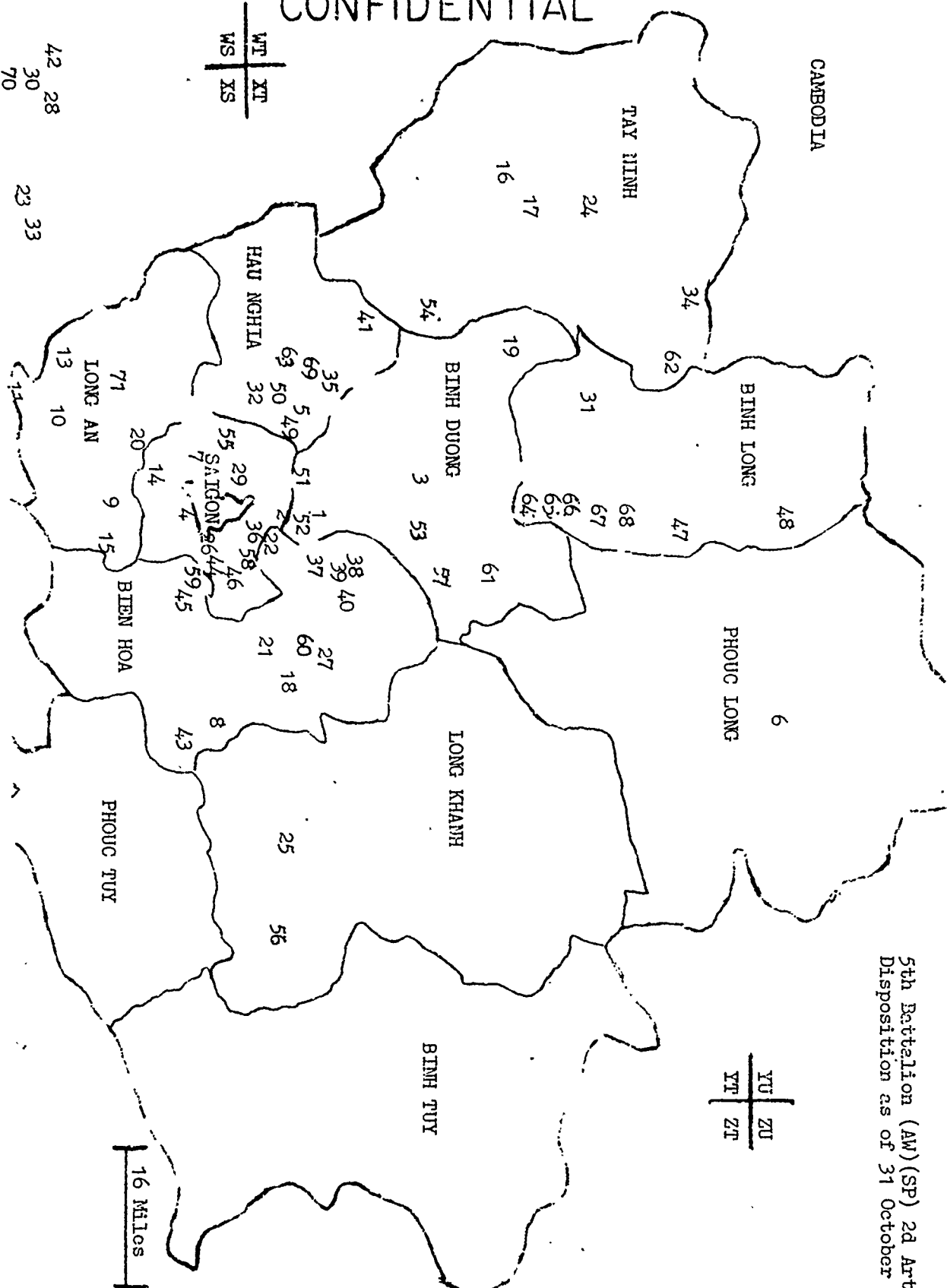
4. Weight: 1.5 tons complete (carried by 1 CH-47)

* Effective range of searchlights, in either mode of operation, is dependent on atmospheric conditions as well as terrain features. When considering employment of searchlights, effective range must be determined for an individual analysis of the particular area of operation and prevailing weather.

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WT	XT
WS	XS



5th Battalion (AW) (SP) 2d Artillery
Disposition as of 31 October 1968

YU	ZU
YT	ZT

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Incl 2

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Key for Inclosure 2
5th Battalion (AW)(SP), 2d Artillery
Representative Positions for
Period 1 August 1968 - 31 October 1968

- | | |
|---------------------|----------------------|
| 1. Phu Loi | 37. NDP XT 889154 |
| 2. Rock Quarry | 38. NDP XT 873183 |
| 3. Lai Khe | 39. NDP XT 903177 |
| 4. FSPB 22 | 40. NDP XT 912168 |
| 5. Cu Chi | 41. FSPB Hampton |
| 6. Song Be | 42. NDP XS 112488 |
| 7. FSPB Stephanie | 43. FSPB Grey |
| 8. Bear Cat | 44. NDP XS 960900 |
| 9. Rach Kien | 45. NDP YS 001857 |
| 10. Tan Tru | 46. NDP XS 982965 |
| 11. Binh Phouc | 47. Quan Loi |
| 12. Dong Tam | 48. Loc Ninh |
| 13. Tan An | 49. FSPB Keane II |
| 14. Fishnet Factory | 50. FSPB Keane III |
| 15. Can Giuoc | 51. Phu Cuong Bridge |
| 16. Tay Ninh | 52. Baily Bridge |
| 17. Nui Ba Den | 53. FSPB Normandy I |
| 18. Long Binh | 54. FSPB Delta |
| 19. Dau Tieng | 55. NDP Manchu |
| 20. Ben Luc | 56. Nui Chua Chan |
| 21. II FFV Arty | 57. NDP XT 905333 |
| 22. Di An | 58. NDP XT 948002 |
| 23. FSPB Moore | 59. NDP XS 924975 |
| 24. FSPB St Barbara | 60. NDP YT 094144 |
| 25. Xuan Loc | 61. NDP XT 925442 |
| 26. New Port Bridge | 62. NDP XT 565850 |
| 27. FSPB Concord | 63. FSPB Butler |
| 28. FSPB Todd | 64. FSPB Thunder I |
| 29. FSPB Danford | 65. FSPB Thunder II |
| 30. FSPB Che | 66. FSPB Thunder III |
| 31. FSPB Meade | 67. FSPB Thunder IV |
| 32. Duc Hoa | 68. FSPB Thunder V |
| 33. FSPB Lambert | 69. Bao Trai |
| 34. NDP XT 565850 | 70. FSPB Shade |
| 35. FSPB Stuart | 71. Thu Thua |
| 36. NDP XT 885031 | |

Appendix 1 to Incl 2

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DEPARTMENT OF THE ARMY
Headquarters, 5th Battalion (AV)(SP) 2d Artillery
APO San Francisco 96266

11 September 1968

SUBJECT: Employment of Automatic Weapons (AV) and Searchlights in
II FFORCEV.

Commanding General
II FFORCEV Arty
APO San Francisco 96266

1. Lessons learned in combat operations throughout the III CTZ during the previous two years have provided a firm basis for effective employment of the twin 40mm M-42, calibre .50 quadruple machine gun M-55, and the AN/MSS-3, xenon 23 inch jeep mounted searchlight. Salient points and pertinent guidelines are summarized herein to assist commanders in the utilization and employment of automatic weapons and searchlights in combat operations.

a. The mission of the battalion is to provide automatic weapons support to elements of II Field Force Vietnam. Automatic weapons have been employed exclusively in the ground support role with no air-defense mission.

b. Employment has been characterized by wide dispersion of tactical elements in support of every major unit in the II FFORCEV TAOR. The battalion routinely occupies 40-44 tactical positions on a daily basis.

c. Inclosure 1 provides characteristics and capabilities to assist in planning automatic weapons employment.

2. Employment and Missions

a. When properly employed automatic weapons have been extremely effective against enemy ground forces. Mobility, quick reaction, and devastating volumes of accurate direct fire have been a genuine deterrent to enemy attack and highly effective in destroying fixed enemy forces. However, when improperly employed automatic weapons have been rendered ineffective, provided little fire support and incurred serious maintenance deadlines. For example; extended search and destroy operations in heavy

Incl 3

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jungle terrain causes excessive wear on hard to replace M-42 engines, transmissions, and suspension parts. The age and system peculiarity of the M-42 and M-55 automatic weapons systems dictate extreme attention to proven employment considerations.

b. Missions effectively performed by automatic weapons.

(1) Perimeter security

(a) Base camps

(b) Fire support patrol bases (FSPB) and night defensive positions (NDP).

(2) Route/Road security

(a) Convoy escort

(b) Road outposting

(c) Engineer security (construction and mine sweep operations)

(3) Ready Reaction Force/mobile reserve

(4) Direct support of infantry

(5) Blocking forces

c. Missions ineffectively performed by automatic weapons.

(1) Search and destroy in heavy jungle

(2) Road runner operations where tracked vehicles are used to detonate mines.

(3) (M-42 only) extensive escort of wheeled vehicle convoys over hard surfaced roads.

(4) (M-55 only) escort of tracked vehicles.

(5) Extensive screening and reconnaissance.

d. Fire support

(1) Direct Fire

(a) Preparatory and covering fires

(b) Reconnaissance by fire

(c) Interdiction fire

(d) Flat trajectory, pin point fire at designated targets

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(2) Indirect Fire

(a) Interdiction fire (area)

(b) On call (observed or unobserved)

e. Special missions

(1) Helilift (M-55 only)

(2) Riverine

f. Searchlight missions

(1) Perimeter security (detection and identification infra-red and visible light.)

(2) Harassment and interdiction with visible light.

(3) Battlefield illumination (area and pinpoint)

(4) Beacon guide for friendly patrols and aircraft.

3. Employment considerations between M-42 and M-55 weapons systems.

a. The M-55 mounted on its 2½ ton truck prime mover is restricted to existing road networks. Where mobility and cross-country movement is a consideration the M-42 is preferable.

b. Where fields of fire and observation are limited (e.g. 100-200 meters) the M-55 can provide a heavy volume of close-in penetrating fire.

c. Although both weapons are capable of indirect area fire, the M-42 is preferred because of its speed, accuracy and increased range. Additional accuracy of M-42 indirect fire may be obtained by utilization of fire data from co-located US-Artillery units with their sophisticated fire direction centers.

d. In static locations where fire power is required and mobility is secondary, the M-55 should be employed. Where access to a tactical location by land means is limited, the M-55 can be effectively employed by air-lifting into position. Consideration must be given to immediate extraction in retrograde.

e. The 40mm .50 projectile has more penetrating ability than the point detonating 40mm round, thus is generally preferred where fields of fire contain heavy brush and vegetation.

f. Ammunition for both weapons may ricochet up to maximum ranges. Point detonating (PD) self-destruct (SD) ammunition for 40mm, though designed to self-destruct at 3,500 meters, occasionally ricochets up to a maximum range of 9000 meters. Employment of either weapon in

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an area of heavy friendly or civilian concentrations must consider this possibility if heavy firing is contemplated.

4. Maintenance

a. To maintain a high level of combat readiness, constant detailed maintenance is imperative for automatic weapons and searchlights. AW Commanders must be provided sufficient time to perform the extensive maintenance of these system peculiar weapons. Successful maintenance in the past has been performed through a rotational system whereby at least two M-55's and two M-42's at the battery level are held in unit maintenance facility for maintenance stand-down. These fire units are then rotated with other fire units in field locations to maintain a constant flow of vehicles through an adequate maintenance facility. Searchlights are most effectively maintained by rotation of one searchlight per platoon through the unit maintenance facility.

b. Repair parts for AW and searchlight equipment are available in limited quantities. Direct support of system peculiar items is accomplished on an area basis through non-divisional agencies. System common items are maintained through supported unit, direct support agencies whether divisional or non-divisional. A critical factor is the response and co-operation of all agencies in effecting timely repair of tactical equipment. A particular factor in effective support of M-42's is the provision of priority wrecker support to the AW battery for installation of engines and transmissions.

c. Inherent in automatic weapons and searchlight readiness is vehicle and gun exercise. Automatic weapons must be fired at least on a weekly basis and all vehicles should be exercised at least 10 miles per week.

5. Selection and Occupation of Position.

a. Each AW and searchlight position must be selected to allow maximum fields of fire and observation. Mutual support between two or more searchlights should be achieved wherever possible. Once the position is selected, each of the following must be worked out in detail:

(1) Primary and alternate means of communication to supported unit.

(2) Rules of engagement including:

(a) Authority to return hostile fire. (Maximum possible freedom to fire is necessary for effective employment.)

(b) Location of friendly forces, villages, and LP/OP's on an up-to-the-minute basis.

(3) Detailed range cards with emphasis on range and direction to obstacles and likely targets.

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b. Field fortifications are needed to ~~obscure M-42 and searchlight~~ silhouettes and to protect mounts and crews from RPG and small arms fire. Infantry security, cleared area of cover and concealment, and protective devices (claymores, trip flares, berms) must be used to keep RPG and recoilless gunners out of effective range. The thin frontal armor and open turret of both the M-42 and the M-55 make them extremely vulnerable to rocket, grenade, and small arms attack.

6. Lessons Learned

a. Specific employment of automatic weapons and searchlights will vary depending on terrain and mission. However, a few lessons learned have provided firm guidelines in certain situations.

b. Automatic weapons must always be employed in multiples of two. Two weapons are considered to be the smallest fire unit capable of working as an effective tactical force to maintain basic mutual support, command integrity, and provide for vehicle recovery.

c. In rectangular perimeters automatic weapons and searchlights are most effective when deployed at the corners of the perimeter.

d. Searchlights employed in conjunction with automatic weapons in FSPB's and NDP's considerably enhance the defense posture. Searchlights can provide accurate direction for automatic weapons by laying their azimuth indicators parallel with the automatic weapons. Other night vision/detection devices used jointly with the automatic weapons defense also enhance the effectiveness of target engagements.

e. M-42's when used with infantry elements, should always be protected by infantry security elements and employed to the flanks and/or high ground because of its flat firing trajectory.

f. The M-55 may be used to support infantry elements, but only in special situations where secure overwatching terrain is available for the M-55 to occupy. In this instance the M-55 can bring effective fire power to bear on pin point targets.

7. Searchlight Employment

a. Searchlights are used primarily in the infra-red mode for detection without disclosure of the position. However, infra-red detection is limited by terrain and weather conditions. Upon detecting and determining definite targets, the searchlight may be switched instantly to its visible light mode for target illumination and engagement.

b. Infra-red reflections are encountered from even small obstacles in the searchlight's line of vision. Therefore, clear fields of vision are necessary for effective searchlight employment. In some field positions, fields of vision are enhanced by emplacing the searchlight above surrounding obstacles.

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c. Visible light may be reflected from clouds to enhance the vision of friendly patrols and friendly nearby positions utilizing starlight scopes.

8. For additional special employment techniques or assistance, commanders are encouraged to contact this headquarters.

Theodore H. Schmidt

THEODORE H. SCHMIDT
LTC, Artillery
Commanding

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DEPARTMENT OF THE ARMY
Headquarters, 5th Battalion (AW)(SP) 2d Artillery
APO San Francisco 96266

Fact Sheet on Vulcan Combat Evaluation

1. Concept of Evaluation: Four (4) Vulcans will be evaluated in tactical assignments by replacing an equal number of M42 or M55 weapons. The evaluation will be conducted by ACTIV representatives and will not interfere with the tactical missions. Replaced M42's or M55's will be returned to base camp and stood down for maintenance with a be prepared mission to replace Vulcan if necessary.
2. Maintenance: System peculiar maintenance support will be provided by Vulcan direct support teams. Common item maintenance (track-wheel, vehicles, communications, and small arms) will be provided by supported field element agencies.
3. Capabilities:
 - a. Range:
 - (1) Ground mode approx - 2000 meters effective; approx 4500 meters max.
 - (2) Air defense mode - approximately 2850 meters. (2200 meters W/ROR)
 - b. Weight - 26,000 lbs combat loaded with 7.3 psi ground pressure.
 - c. Cruising range - 300 miles at speeds up to 45 MPH.
 - d. Amphibious capability - Unlimited with flotation kits.
 - e. Ammunition: Basic load of 2000 rounds with 1000 rounds ready to fire.
 - (1) Types: XM246E3-HEI-T-SD (Air Defense); M220 TPT; and M56A3-HEI.
 - (2) Muzzle velocity - 3,400 feet per second.
 - f. Crew: Squad Leader, Senior Gunner, Assistant Gunner, and Driver.
4. Components:
 - a. M-741 vehicle - basic M-113A1 with lock-out suspension and modified top deck to accommodate the mount and cannon.
 - b. M-157 mount - provides firing platform, contains ammunition storage and linkless conveyor feed system.
 - c. M-168 cannon:
 - (1) 6 barrels 20mm, air cooled electrically operated rotating cannon.
 - (2) High rate of fire - 3000 rds/min with selective burst of 10, 30, 60, and 100 rds.
 - (3) Low rate of fire - 1000 rds/min with no selective burst feature.
 - d. Sights:
 - (1) M-51 Automatic Lead Computing Sight
 - (2) M-120 Direct Fire Scope
 - (3) AN/TVS-2 Night Vision Scope
 - e. AN/VPS-2 Radar (Air Defense)
 - (1) Range only pulsed doppler radar
 - (2) Effective range 200-5000 meters at target speeds from 40-650 knots.

Incl 4

Theodore H Schmidt

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LTC, Arty
Commanding

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